

**Amendments to the Claims:**

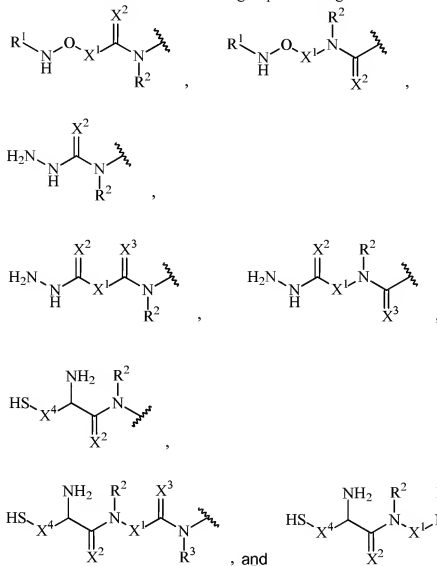
This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Original) A substance which can specifically interact with sugar chains.
2. (Original) A substance according to claim 1, wherein a level of the interaction between the substance and the sugar chains is such that a necessary dissociation energy when laser irradiation is performed in a MALDI-TOF is at least 5eV.
3. (Original) A substance according to claim 1, which is bindable to a support.
4. (Original) A substance according to claim 1, wherein the substance comprises a functional group which can react with an aldehyde group in a fluid.
5. (Original) A substance according to claim 4, wherein the functional group is selected from a group consisting of a hydroxylamino group, a N-alkylhydroxylamino group, a hydrazide group, a thiosemicarbazide group and a cysteine residue.
6. (Original) A substance according to claim 1, wherein the interaction comprises a covalent bond.
7. (Original) A substance according to claim 1, wherein the interaction comprises oxime bond, hydrazone bond, thiosemihydrazone bond, perhydrothiazine ring formation or thiazolidine ring formation.

8. (Previously Presented) A substance according to claim 1, represented by formula (I): X-Y-Z (I)

wherein X is selected from the group consisting of:

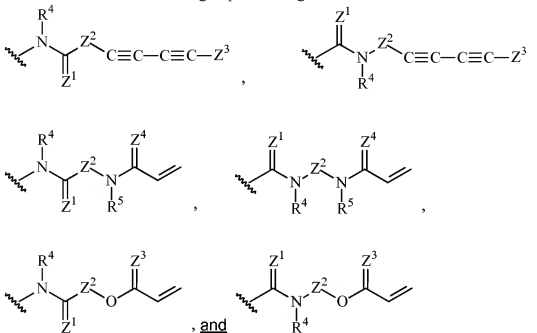


wherein,  $X^1$  is substituted or unsubstituted alkylene or substituted or unsubstituted alkenylene which may be substituted,  $X^2$  is an oxygen atom or a sulfur atom,  $X^3$  is oxygen or sulfur,  $X^4$  is methylene or ethylene,  $R^1$  is hydrogen or alkyl, and  $R^2$  and  $R^3$  are independently hydrogen or alkyl;

Y is single bond; optionally substituted alkylene in which at least one group selected from the group consisting -O-, -S-, -S-S-, -N( $R^a$ )-C(=O)-, -C(=O)-N( $R^b$ )-, and phenylene which may be substituted, may intervene; or optionally substituted alkenylene in

which at least one group selected from the group consisting -O-, -S-, -S-S-, -N(R<sup>a</sup>)-C(=O)-, -C(=O)-N(R<sup>b</sup>)-, and phenylene which may be substituted, may intervene, wherein, R<sup>a</sup> and R<sup>b</sup> are independently hydrogen atom or alkyl;

Z is selected from the group consisting of:



wherein, Z<sup>1</sup> is an oxygen atom or sulfur atom, Z<sup>2</sup> and Z<sup>3</sup> are independently optionally substituted alkylene in which phenylene may intervene, or optionally substituted alkenylene in which phenylene may intervene, Z<sup>4</sup> is an oxygen atom or a sulfur atom, R<sup>4</sup> and R<sup>5</sup> are independently a hydrogen atom or alkyl.

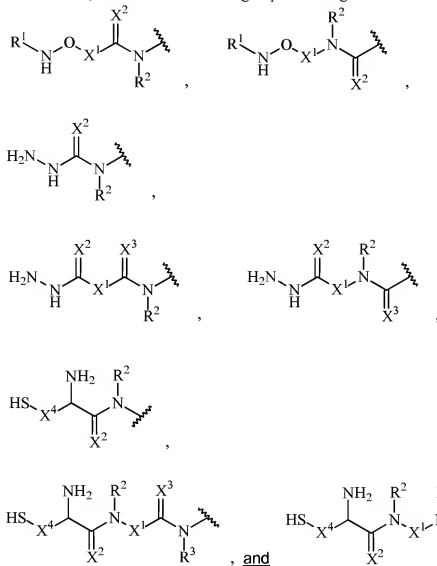
9. (Original) A substance obtained by polymerizing the substance according to claim 8.

10. (Original) A substance according to claim 9, wherein the polymerization is initiated by UV-irradiation.

11. (Original) A substance according to claim 9, obtained by polymerizing a monolayer obtained by physical adsorption of Z site of the compound represented by formula (I) to a support.

12. (Previously Presented) A substance according to claim 1, which is a copolymer obtained by polymerizing a compound represented by formula (I): X-Y-Z (I)

wherein, X is selected from the group consisting of:

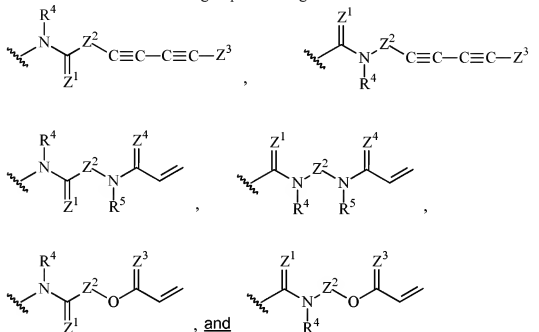


wherein, X<sup>1</sup> is substituted or unsubstituted alkylene, substituted or unsubstituted alkenylene, X<sup>2</sup> is oxygen or sulfur, X<sup>3</sup> is oxygen or sulfur, X<sup>4</sup> is methylene or ethylene, R<sup>1</sup> is hydrogen or alkyl, and R<sup>2</sup> and R<sup>3</sup> are independently hydrogen or alkyl;

Y is single bond; optionally substituted alkylene in which at least one group selected from the group consisting of -O-, -S-, -S-S-, -N(R<sup>a</sup>)-C(=O)-, -C(=O)-N(R<sup>b</sup>)-, and phenylene which may be substituted, may intervene; or optionally substituted alkenylene in which at least one group selected from the group consisting of -O-, -S-, -S-S-, -N(R<sup>a</sup>)-C(=O)-,

-C(=O)-N(R<sup>b</sup>)-, substituted or unsubstituted phenylene, may intervene wherein, R<sup>a</sup> and R<sup>b</sup> are independently hydrogen or alkyl;

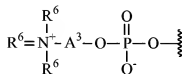
Z is selected from the group consisting of:



wherein, Z<sup>1</sup> is oxygen or sulfur, Z<sup>2</sup> and Z<sup>3</sup> are independently optionally substituted alkylene in which phenylene may intervene, or optionally substituted alkenylene in which phenylene may intervene, Z<sup>4</sup> is oxygen or a sulfur, R<sup>4</sup> and R<sup>5</sup> are independently hydrogen or alkyl; and

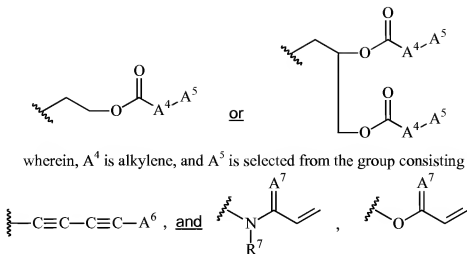
a compound represented by formula (II): A<sup>1</sup>-A<sup>2</sup>(II)

wherein, A<sup>1</sup> is H(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub>O- (n is an integer from 1 to 5) or a group represented by a formula:



wherein, A<sup>3</sup> is alkylene, and R<sup>6</sup> is alkyl; and

A<sup>2</sup> is a group represented by formula:



$A^6$  is alkyne,  $A^7$  is oxygen or sulfur, and  $R^7$  is a hydrogen or alkyl.

13. (Original) A substance according to claim 12, wherein the polymerization is initiated by UV-irradiation.

14. (Original) A substance according to claim 12, wherein mole fraction of the compound represented by formula (II) is 0.1 to 0.9.

15. (Original) A substance according to claim 12, obtained by polymerizing monolayers obtained by physical adsorption of Z site of the compound represented by formula (I) and  $A^2$  site of the compound represented by formula (II) to a support.

16. (Original) A substance according to claim 12, obtained by polymerizing water dispersion or a cast film of a mixture comprising the compound represented by formula (I) and the compound represented by formula (II).

17. (Original) A sugar chain-trapping carrier, comprising a substance which can specifically interact with sugar chains.

18. (Original) A sugar chain-trapping carrier, in which the substance according to claim 9 or 12 is transferred to a support.

19. – 43. (Canceled)

44. (New) A method for synthesizing a substance which can specifically interact with sugar chains, comprising the steps of:

- A) providing a functional group which can react with an aldehyde group in a fluid; and
- B) binding the functional group to a desired substance.

45. (New) A method for separating, concentrating, or purifying sugar chains or a sugar chain-containing substance in a sample, comprising the steps of:

- a) contacting a sugar chain-trapping carrier comprising a substance which can specifically interact with sugar chains with the sample in a fluid phase under conditions that the sugar chain-trapping carrier can react with the sugar chains or sugar chain-containing substance;
- b) isolating a composite of the sugar chain-trapping carrier and the sugar chains or sugar chain-containing substance from the fluid phase; and
- c) exposing the composite to the conditions that the interaction between the sugar chain-trapping carrier and the sugar chains or sugar chain-containing substance is at least partially eliminated.

46. (New) A method according to claim 45, further comprising the step of liberating an aldehyde group in the sample before step a).

47. (New) A method according to claim 46, wherein the step of liberating the aldehyde group comprises a treatment by glycosidase and/or a hydrazinolysis.

48. (New) A method according to claim 45, further comprising the step of:

- d) subjecting the sample to the conditions where the sugar chain-containing substance is separated into sugar chains and the remainder.

49. (New) An apparatus for separating, concentrating, or purifying sugar chains or a sugar chain-containing substance in a sample, comprising:

- a) a sample introduction section;
  - b) a container having a space which can house a fluid phase; and
  - c) a sugar chain-trapping carrier comprising a substance which can specifically interact with sugar chains,
- the container being in fluid communication with the sample introduction section.

50. (New) A system for separating, concentrating, or purifying sugar chains or a sugar chain-containing substance in a sample, comprising:

- A) an apparatus comprising:
  - a) a sample introduction section;
  - b) a container having a space which can house a fluid phase; and
  - c) a sugar chain-trapping carrier comprising a substance which can specifically interact with sugar chains,

the container being in fluid communication with the sample introduction section:
- B) means for isolating a composite of the sugar chain-trapping carrier and the sugar chains in the fluid phase; and
- C) means for exposing the composite to the conditions that the interaction between the sugar chain-trapping carrier and the sugar chains is at least partially eliminated.

51. (New) A method for manufacturing an apparatus for separating, concentrating, or purifying sugar chains or a sugar chain-containing substance in a sample comprising the steps of:

- a) providing a substance which can specifically interact with sugar chains;
- b) causing the substance which can specifically interact with sugar chains to interact with the support to produce a sugar chain-trapping carrier; and
- c) fixing the sugar chain-trapping carrier to a container.



52. (New) A method for analyzing sugar chains or a sugar chain-containing substance in a sample, comprising the steps of:

- a) contacting a sugar chain-trapping carrier comprising a substance which can specifically interact with sugar chains with the sample in a fluid phase under the conditions that the sugar chain-trapping carrier can react with the sugar chains;
- b) exposing the sugar chain-trapping carrier and the sample to the conditions of desired stringency; and
- c) identifying a substance interacted with the sugar chain-trapping carrier.

53. (New) A method according to claim 52, wherein the identifying step c) includes a mass spectrometry analysis.

54. (New) A method for producing a sugar chain replica of a sample comprising or expected to comprise sugar chains, comprising the steps of:

- a) locating a substance which can specifically interact with sugar chains on a surface of a two-dimensionally extended support, and contacting a surface on which the substance is not being located with a solid foil; and
- b) contacting the sample comprising or expected to comprise sugar chains with the solid foil.

55. (New) A sugar chain replica of a sample comprising or expected to comprise sugar chains, comprising:

- a) solid foil;
- b) a two-dimensionally extended support on which a substance which can specifically interact with sugar chains is located, the support for interacting with the solid foil; and
- c) a component derived from the sample comprising or expected to comprise sugar chains, the component being trapped by the substance which can specifically interact with sugar chains.

56. (New) A method for analyzing sugar chains on a sample comprising or expected to comprise sugar chains, comprising the steps of:

- a) locating a substance which can specifically interact with sugar chains on a surface of a two-dimensionally extended support, and contacting the surface on which the substance is not located with a solid foil;
- b) contacting the sample comprising or expected to comprise sugar chains with the solid foil; and
- c) analyzing sugar chains existing on a surface of the solid foil.

57. (New) An apparatus for analyzing sugar chains or a sugar chain-containing substance in a sample, comprising:

- a) sugar chain-trapping carrier comprising a substance which can specifically interact with sugar chains; and
- b) means for identifying the sugar chains.

58. (New) A device for analyzing sugar chains or a sugar chain-containing substance in a sample, comprising a support on which a substance which can specifically interact with sugar chains is located.

59. (New) A method for diagnosing or differentiating a subject, comprising the step of:

- a) analyzing sugar chains or a sugar chain-containing substance in a sample derived from the subject using the device according to claim 58.

60. (New) A system for analyzing sugar chains or a sugar chain-containing substance in a sample, comprising:

- a) sugar chain-trapping carrier comprising a substance which can specifically interact with sugar chains;
- b) means for exposing the sugar chain-trapping carrier and the sample to the conditions of desired stringency; and

- c) means for identifying the sugar chains.

61. (New) A method for manufacturing an apparatus for analyzing sugar chains or a sugar chain-containing substance in a sample, comprising the steps of:

- a) providing a substance which can specifically interact with sugar chains; and
- b) causing the substance which can specifically interact with sugar chains to interact with the support to produce a sugar chain-trapping carrier.

62. (New) A method for producing a sugar chain array, comprising the steps of:

- a) providing a support;
- b) locating a substance which can specifically interact with sugar chains in a desired arrangement.

63. (New) A method for analyzing a substance specifically binding to sugar chains or a sugar chain-containing substance in a sample, comprising the steps of:

- a) causing a sugar chain-trapping carrier comprising a substance which can specifically interact with sugar chains to interact with the sugar chains or sugar chain-containing substance in a fluid phase to fix;
- b) contacting the sugar chain-trapping carrier with the sample under the conditions expected that the substance specifically binding to sugar chains or a sugar chain-containing substance can react with the sugar chains;
- c) exposing a mixture of the sugar chain-trapping carrier and the sample to the conditions of desired stringency; and
- d) identifying the substance specifically binding to sugar chains or a sugar chain-containing substance.

64. (New) A method according to claim 63, wherein the substance specifically binding to sugar chains or a sugar chain-containing substance is an antibody or lectin.

65. (New) A device for analyzing a substance specifically binding to sugar chains or a sugar chain-containing substance in a sample, comprising:

a) a sugar chain-trapping carrier comprising a substance which can specifically interact with sugar chains, in which the sugar chains or sugar chain-containing substance is fixed to the carrier by specific interaction.

66. (New) A system for analyzing a substance specifically binding to sugar chains or a sugar chain-containing substance in a sample, comprising:

a) a device comprising a sugar chain-trapping carrier comprising a substance which can specifically interact with sugar chains, in which the sugar chains or sugar chain-containing substance is fixed to the carrier by specific interaction;

b) a sample introduction section;

c) means for exposing a mixture of the sugar chain-trapping carrier and the sample to the conditions of desired stringency; and

d) means for identifying the substance specifically binding to sugar chains or a sugar chain-containing substance.

67. (New) A sugar chain composition having an increased sugar chain content, obtained by contacting a sample comprising sugar chains with a substance which can specifically interact with sugar chains, and then separating sugar chains in the interacted sample.

68. (New) A sugar chain composition according to claim 67, wherein the substance which can specifically interact with sugar chains can specifically interact with any sugar chain at a certain level or higher.